

Pulsim 10-layer architecture (v1.3.0)
strict acyclic dependency: each layer uses only the layers below

L9	Python `pp.simulate()` facade control / plot / sweep / thermal / mmc / spice helpers	~10,000 linesergonomic API
L8	YAML loader declarative-circuit format → graph + pool	~500 lines
L7	pybind11 Python bindings thin C++ → Python wrapping	~1,000 lines
L6	CircuitBuilder (C++) ergonomic builder over Layer 1-3	~1,500 lines
L5	run_transient + event detection the simulation driver loop	~2,000 lines
L4	PwlStateSpaceCache + trapezoidal companion per-mask J-x = b cache, rank1 fast-path	~3,000 lines chapters 3, 4, 7
L3	Stamping pipeline per-device KCL contributions to J + b	~800 lines chapter 2
L2	Devices + AD Resistor, Capacitor, MOSFET, Diode, ...	~2,000 lines
L1	Graph + SwitchStateMask topology + bit-mask state enumeration	~600 lines
L0	Numeric primitives + PulsimSparseLuSolver Real, Index, Matrix, DirectSolver, in-house sparse LU	~2,000 lines chapters 5, 6, 7

**v1.3.0
algorithmic
contributions
(this doc set)**